

REMARKS/ARGUMENTS

Claims 1-14 and 16-22 were previously canceled; claims 15 and 23-33 are pending. In the Office Action, numerous claim objections were raised against the wording of the claims. The claim language has been carefully checked and amendments are presented to ensure that the claims meet the requirements of 35 U.S.C. § 112. The independent claims (claim 23 and claim 29) have been amended to make it clear that the access management table, referenced by the second determination operation, "defines the MAC addresses identifying the host computer by IP address." This feature is supported by the specification as filed; no new matter is added. As described further below, this feature cannot be provided by any combination of the cited references. Further examination and reconsideration of the application, as amended, are requested.

Claim Amendments and the Claimed Invention

In claims 24 and 30, the acronym "MIB" has been spelled out (Management Information Base), and the language "to obtaining the MAC address" has been corrected so as to read "to obtain the MAC address." Claim 23 has been corrected to provide language that is consistent with antecedent basis. The Office Action noted that "same segment" and "same network" were used interchangeably; hence the Office Action applied "same network" in the claims. With this amendment, these claims have been amended to consistently use only "same network", for greater clarity. The claims have also been checked for correctness of using "command" and "iSCSI login request" differently; the distinction between the two is proper because "command" refers to the access command being processed and the login request refers to a login request command (compare claim 23 and 24, and claim 29 and 30). Unfortunately, the word "command" was used in claim 24 and claim 30 to refer to the login request, not the access command. With this amendment, the dependent claims (24 and 30) have been amended to refer to the "request" and not to the "command". In addition, the claims have been corrected to recite "included within the command rather than just "including the command", per the suggestion in the Office Action.

In claims 23 and 29, the "means for performing said second determination and said third determination" has been clarified. The Office Action noted two scenarios, the **first scenario** when the source IP address is **not** contained in the same network as the storage apparatus, the **second scenario** when the source IP address **is** contained in the same network. The Office Action asserted that it was not clear if the second and third determinations of the claims were both performed in both scenarios. The Office Action assumed both determinations are performed in both scenarios. The Office Action requested a more clearly defined scope of the claim.

The Office Action is correct in that both determinations are performed in both scenarios; the claim feature has been amended to recite that the second and third determinations are performed "in accordance with a source MAC address in the frame of the iSCSI login request sent from said host computer and cataloged in said access management table." The feature, as previously written, referred to performing the second and third determination "when the source IP address ... is in the same segment as the port of the storage apparatus". This last reference, however, corresponds to the sequence of the "Yes" result from box 1110 in Fig. 6 to box 1180 (the second scenario of the IP address being in the same network as the storage apparatus) and then connecting with box 1230 of Fig. 8 to perform the second determination at box 1230 (checking MAC address) and then possibly perform the third determination at box 1320 (checking access management table) of Fig. 8. In that way, the last reference does not accurately reflect the intended scope of the claims. The "means for performing said second determination and said third determination" has been amended in claim 23 and claim 29 so that the last reference has been deleted.

Deleting the reference makes the claim scope more clear because the system also performs the second and third determination in the event that the IP address is not in the same network (i.e., the first scenario). The first scenario corresponds to the operation sequence of the "No" result from box 1110 in Fig. 6 through box 1150 (the second determination) and then to box 1160 and then off-page to Fig. 7 and box 1420 (the third determination). Hence, the claims (23 and 29) as amended more clearly define the scope of the invention.

Claim 23 has been amended to delete the separate recital of the storage unit and memory because the deleted elements are not mentioned elsewhere in the claims. Thus, claim 23 is more closely parallel to the language of claim 29. In addition, the "storage apparatus" is moved from the claim preamble to the body, to recite an element of the claimed storage system.

Lastly, the "means for determining a second determination" has been amended in claim 23 and claim 29 to recite that the access management table "defines the MAC addresses identifying the host computer by IP address." This clarifies that the access management table provides a mapping that associates the host MAC address with the IP address of the host, among other data. This is illustrated in Fig. 5, which shows the access management table 80 with a MAC address column 81, an IP address column 82, and a logical unit (LU) column 83, as well as session information 84. As noted below, no combination of the cited references would provide an access management table that defines the MAC addresses identifying the host computer by IP address in determining access rights to LUs. For convenience, Fig. 5 of the pending application is reproduced below:

FIG. 5

MAC Address	IP Address	LU	Session
MA0	IPAO	LUN0	establish
MA1	IPA1	LUN1, LUN2	login
MA2	nil	LUN2	Not establish

80

Substantive Rejection of the Claims

The combination of U.S. Patent No. 6,895,461 to Thompson and U.S. Patent No. 6,292,838 to Nelson was used to reject the claims as obvious. It is asserted that the proposed combination would be inoperative and would not provide the claimed features.

As shown in Fig. 3 of Thompson, the Thompson patent relates to data communications between computers 127, 128 and storage devices 140 through a SCSI router 110. An IP network 129 exists between the computers 127, 128 and SCSI router 110, and a Fibre Channel network 139 exists between the SCSI router 110 and the storage 140. Fig. 3 of Thompson is reproduced below:

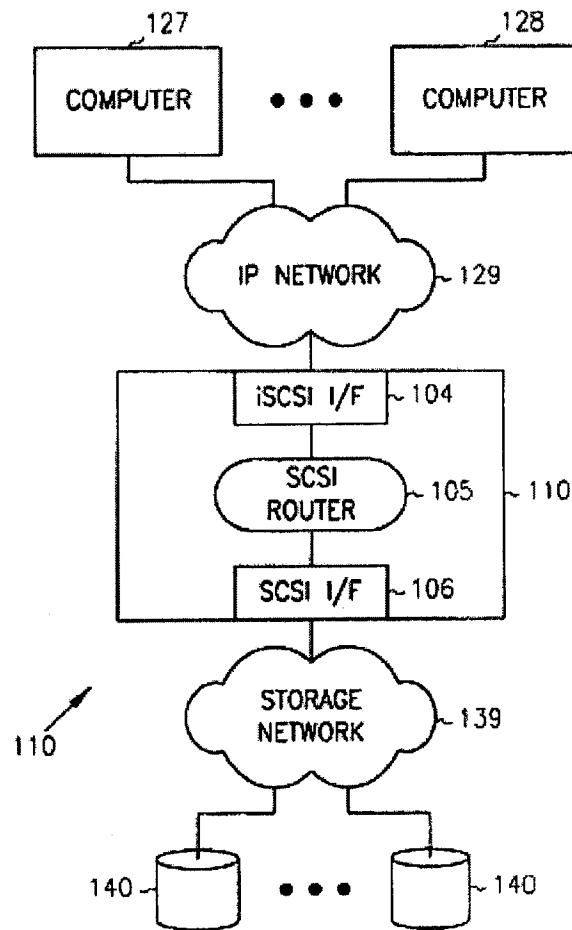


FIG. 3

Thompson notes that TCP/IP headers are stripped off the communications by the SCSI router before sending the communications on to the Fibre Channel network 139 (see column 5, lines 19-24). The router of Thompson keeps a list of IP address for devices that are

allowed access to the storage (col. 5, lines 46-62), but maintains MAC address information of the storage routers, not of the computer hosts (col. 6, lines 11-21).

These characteristics confirm the observation in the Office Action that Thompson does not show the "means for determining a first determination" relating to determining if the host and storage device are in the same network, and also that Thompson does not show the "means for obtaining a MAC address assigned to the port of the host computer", and also does not show the "means for determining a second determination" regarding the host MAC address in the access management table, and also that Thompson does not show a "means for approving an access". It is also asserted that Thompson cannot possibly show a "means for performing said second determination and said third determination" because Thompson admittedly does not show a means for performing the second determination.

The Office Action attempted to combine Nelson with Thompson to provide the missing features. Nelson, however, cannot operate with Thompson, because Nelson is not configured to operate with a Fibre Channel network. In fact, Nelson also says nothing about operation with SCSI protocols. Hence, it is asserted that the proposed combination would fail. Therefore, it is submitted that there is no *prima facie* case of obviousness, and the claims are patentably distinguishable over Thompson and Nelson.

Even if Thompson and Nelson could somehow be combined, it is asserted that they would not provide the claimed features.

As conceded in the Office Action, Thompson is lacking in many of the claimed features. These missing features include the first determination means, the second determination means, and access approving means. Nelson relates to network address management and discusses the problem of associating IP address information of incoming network packets with source host computers when a router is interposed between the host and the destination (see column 2, lines 3-24).

The claims of the present application describe a solution to the problem of a router interposed between host computers and storage by using the multiple determination means of the claims and the access management table, which stores host MAC address information and associated IP address information, as noted above. In contrast, Nelson describes determining a

MAC address corresponding to an IP address by transmitting a series of Address Resolution Protocol (ARP) messages (column 3, lines 18-26) to receive back a string of reply packets and thereby reconstruct the chain of routers that lie between the host and the target (col. 3, lines 43-48). Thus, Nelson makes no use of an access management table such as recited in the pending claims that "defines the MAC addresses identifying the host computer by IP address." Rather, Nelson uses his ARP-message-route-reconstruction technique. It should be apparent that such a technique does not render obvious the claimed features of the present invention relating to an access management table. It should also be apparent that combining Nelson with Thompson would not provide the claimed features, including the access management table and the various determination means that interoperate with, and utilize the data of, the access management table. For example, the "means for approving an access" in claim 23 refers to when the MAC address "has been cataloged in the access management table", as does the "means for determining a third determination" and the "means for performing said second determination and third determination". Claim 29 includes similar features in terms of the claimed method. Neither Nelson nor Thompson can provide such features.

Therefore, it is asserted that combining Thompson with Nelson would not provide all the claimed features, and therefore there is no *prima facie* showing of obviousness with respect to the pending claims.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

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PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 858-350-6100.

Respectfully submitted,


David A. Hall
Reg. No. 32,233

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 858-350-6100 Fax: 415-576-0300

Attachments

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